NWS FORM E-5 (11-88) (PRES. by NWS Instruction 10-924) U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL WEATHER SERVICE	HYDROLOGIC SERVICE AREA (HSA) **WFO Jackson, Mississippi**
MONTHLY REPORT OF HYDROLOGIC CONDITIONS	REPORT FOR: MONTH **May** YEAR **2011**
TO: Hydrometeorological Information Center, W/OH2 NOAA / National Weather Service 1325 East West Highway, Room 7230 Silver Spring, MD 20910-3283	SIGNATURE **Alan E. Gerard, Meteorologist In-Charge** DATE **07/22/2011**

When no flooding occurs, include miscellaneous river conditions, such as significant rises, record low stages, ice conditions, snow cover, droughts, and hydrologic products issued (NWS Instruction 10-924)

☐ **An X inside this box indicates that no river flooding occurred within this hydrologic service area.**

Synopsis...

For the month of May, rainfall from 5.00 to 12.00 inches fell across Arkansas, southern Missouri, and along the Ohio Valley, much of which occurred during the first 2 days of the month. This rainfall combined with April rainfall across the same area and snow melt from the Upper Mississippi River Valley produced near record to record flooding along the Mississippi River from Arkansas City to Natchez. Across the Hydrologic Service Area (HSA), rainfall was below normal.

The month began with a slow moving cold front pushing across Arkansas and into Southeast Mississippi by the morning of the 3rd. This frontal system produced 4.00 to 9.00 inches of rainfall across Arkansas, southern Missouri, West Tennessee, and up the Ohio Valley. Rain within the HSA was much less, ranging from 1.00 to 2.50 inches. High pressure built into the region bringing unseasonably cool and dry weather to the region from the 3rd through the 7th.

From the 8th to 12th, temperatures warmed and humidity increased as winds shifted back to the south. No rainfall was reported during this time period. A cold front pushed across the area on the 13th. Rainfall amounts were less than 0.50 inches with some scattered amounts in the eastern HSA ranging from 1.50 to 3.00 inches. High pressure with cooler and drier conditions controlled the weather through the 17th.

By the 18th, wind shifted to the south bringing warmer and more humid conditions. By the morning of the 20th, an upper level high pressure formed across the region keeping frontal systems from entering the area. A squall line formed in Texas and progressed eastward during the day. The line weakened during the day as it pushed up against high pressure. An outflow boundary formed in Louisiana and propagated into Mississippi by the morning of the 21st. Showers and some thunderstorm formed along the boundary giving rainfall totals up to 1.50 inches across Northeast Louisiana and West Mississippi.

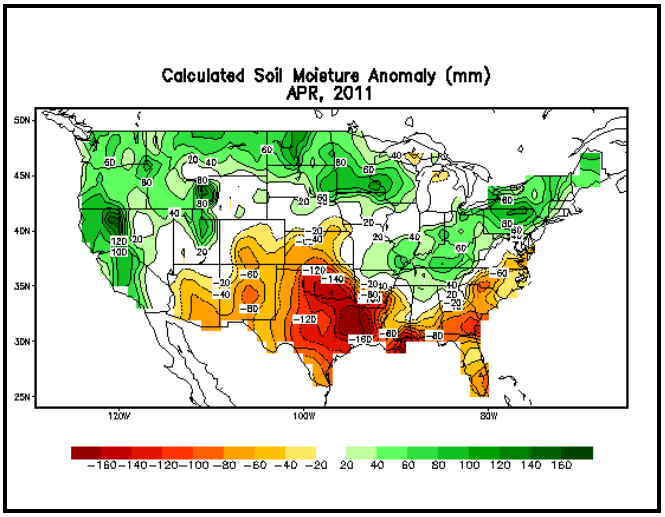
Upper level high pressure strengthened across the HSA on the 22nd keeping rainfall north of the HSA through much of the 25th. An upper level low

pressure area with an associated surface low and cold front began moving eastward on the 25th and pushed across the HSA on the 26th and stalled along the Mississippi Coast on the 27th. Rainfall ranged from 0.50 to 2.00 inches in northern and extreme southern sections of the HSA while central areas received from no rainfall up to 0.50 inches. The stationary front moved rapidly back to the north on the 27th as a warm front bringing stifling heat and humidity back to the area. High pressure at the surface and aloft built back into the region through the end of the month. The only reported rainfall was some scattered light showers which moved into Southeast Mississippi on the 30th.

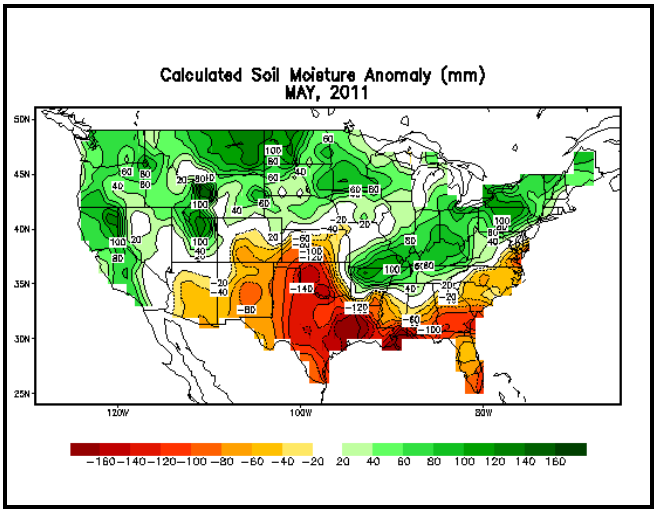
River and Soil Conditions...

Rainfall ranged from 10 to 50 percent of normal across much of Central and South Mississippi and Northeast Louisiana. Rainfall ranged from 50 to 90 percent of normal across North Mississippi and Southeast Arkansas.

The driest area in the HSA continued to be across Northeast Louisiana, Southeast Arkansas and portions of the Yazoo Delta Region of Mississippi. Soil moisture levels decreased across southern portions of the HSA. Even with the below normal rainfall, soil moisture levels saw some improvement especially across Northeast Louisiana and Southeast Arkansas. Soil deficits from 1.00 to 3.00 inches were occurring across much of the HSA with greater deficiencies across the extreme south portion of Mississippi.



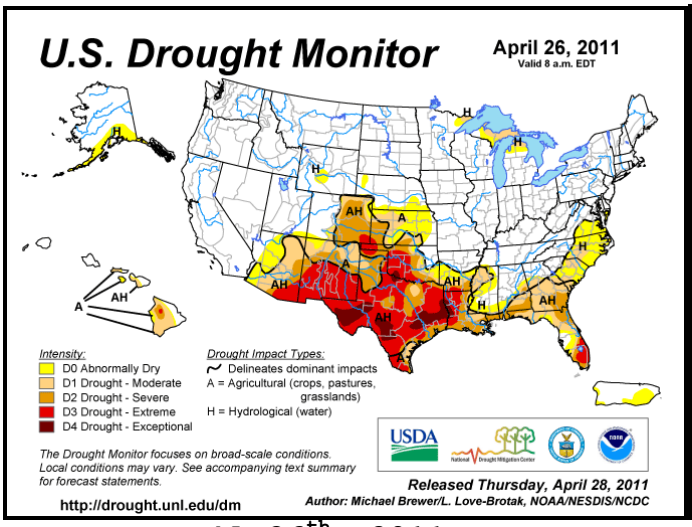
April 2011



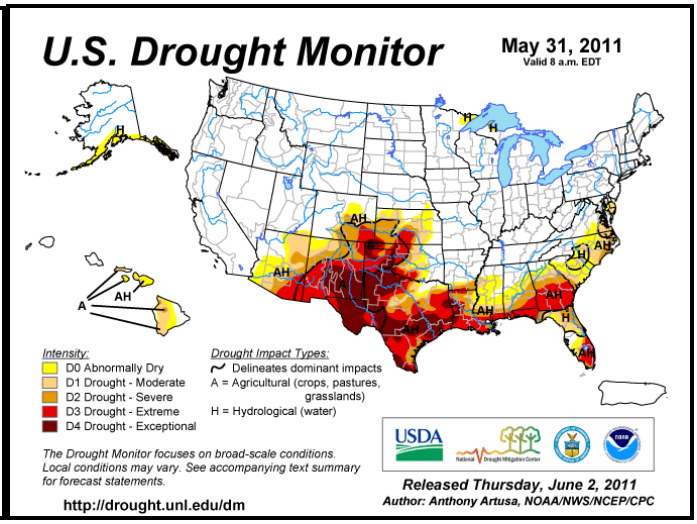
May 2011

Soil Moisture anomaly (departure from normal): (25.4mm = 1 inch)

A comparison of the April 26th U.S. Drought Monitor to the May 31st U.S. Drought Monitor showed the drought worsening over extreme South Mississippi where conditions went from Abnormally Dry (D0) to Moderate (D1) and Severe (D2)drought. The Drought continued to worsen over South Central Mississippi where conditions went from no drought to Abnormally Dry (D0). The status of drought conditions only changed slightly over the remainder of the HSA.

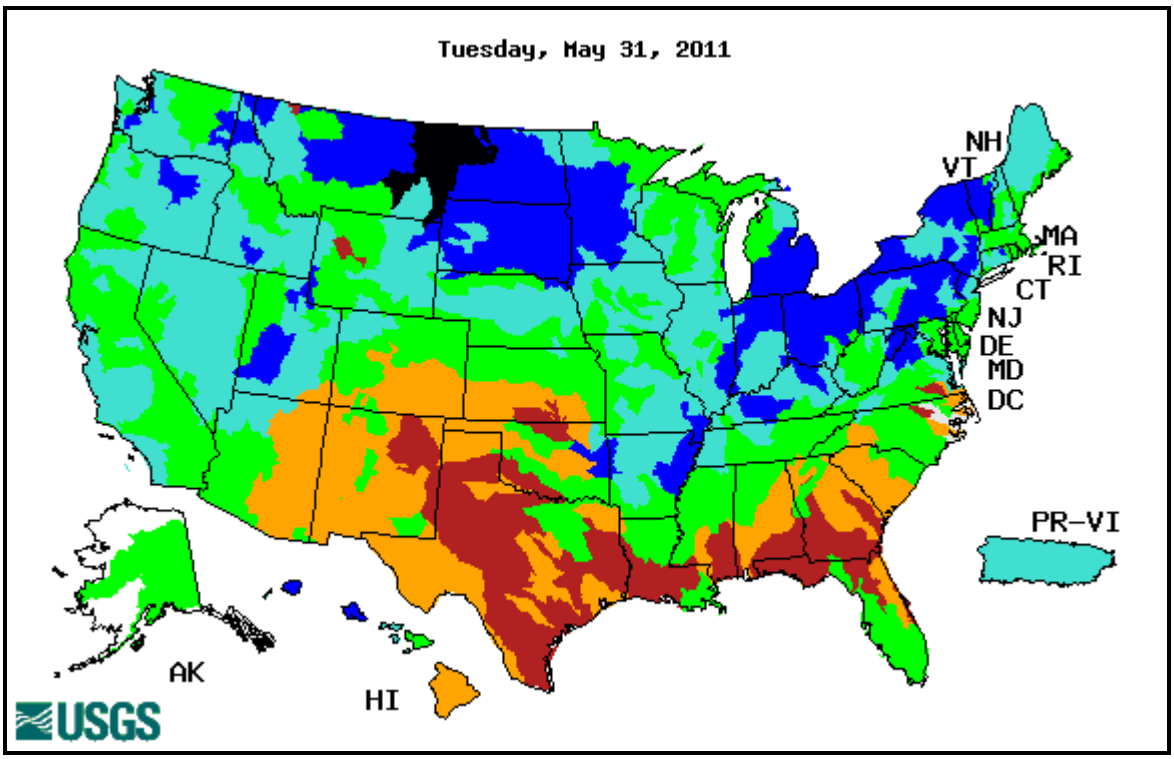


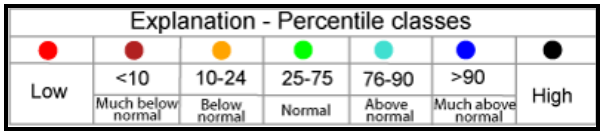
April 26th, 2011



May 31, 2011

The United States Geological Survey's (USGS) May 2011 river streamflow records were compared with all historical May streamflow records. Stream flow was below normal in the Lower Pearl River Basin to well below normal in the Pascagoula River Basin. All other basins had near normal streamflow conditions.





Minor flooding occurred along the Big Black River. Major flooding occurred along the Yazoo and the Mississippi River.

Significant backwater rises from the Mississippi River occurred along the Yazoo, Tensas, Black, and Boeuf Rivers. Heavy rainfall in Central Arkansas around the first of the month produced moderate rises along Bayou Bartholomew in Southeast Arkansas and Northeast Louisiana.

The Mississippi River tributaries in Arkansas, southern Missouri, and the Ohio River experienced heavy rainfall in late April and early May prompting near record flooding at Arkansas City, MS (crest 53.14 feet 5/16) and Greenville, MS (crest 64.22 5/17)to record flooding at Vicksburg, MS (crest 57.10 feet 5/19) and Natchez, MS (crest 61.95 feet 5/19). The Mississippi River at Lake Providence Louisiana crested at 51.70 feet on 5/17.(The crest in 1927 was 50.7 feet.) Note: The Bonnie Carre' Spillway northwest of New Orleans, was opened on May 9th while the Morganza Floodway above Baton Rouge, LA was opened on the May 14. The operation of the Old River Structure just above Morganza and the opening of the Morganza Floodway significantly reduced the river crest at Natchez and the crest forecasts in the Black River backwater areas in Northeast Louisiana.

Areal Flood Warnings were issued throughout the month for portions of Warren and Issaquena counties behind the Steele Bayou Control Structure. With the structure closed to keep the water from the Mississippi River from backing into the Lower Delta Region, River water from the Big Sunflower and other tributaries gathered behind the structure flooding mostly farmland and hunting camps. Areal Flood Warnings were also issued during the month along the Bayou Pierre and Little Bayou Pierre in Claiborne County. Backwater from the Mississippi River pushed into these stream flooding portions of the city of Port Gibson.

Flood potentials are as follows:

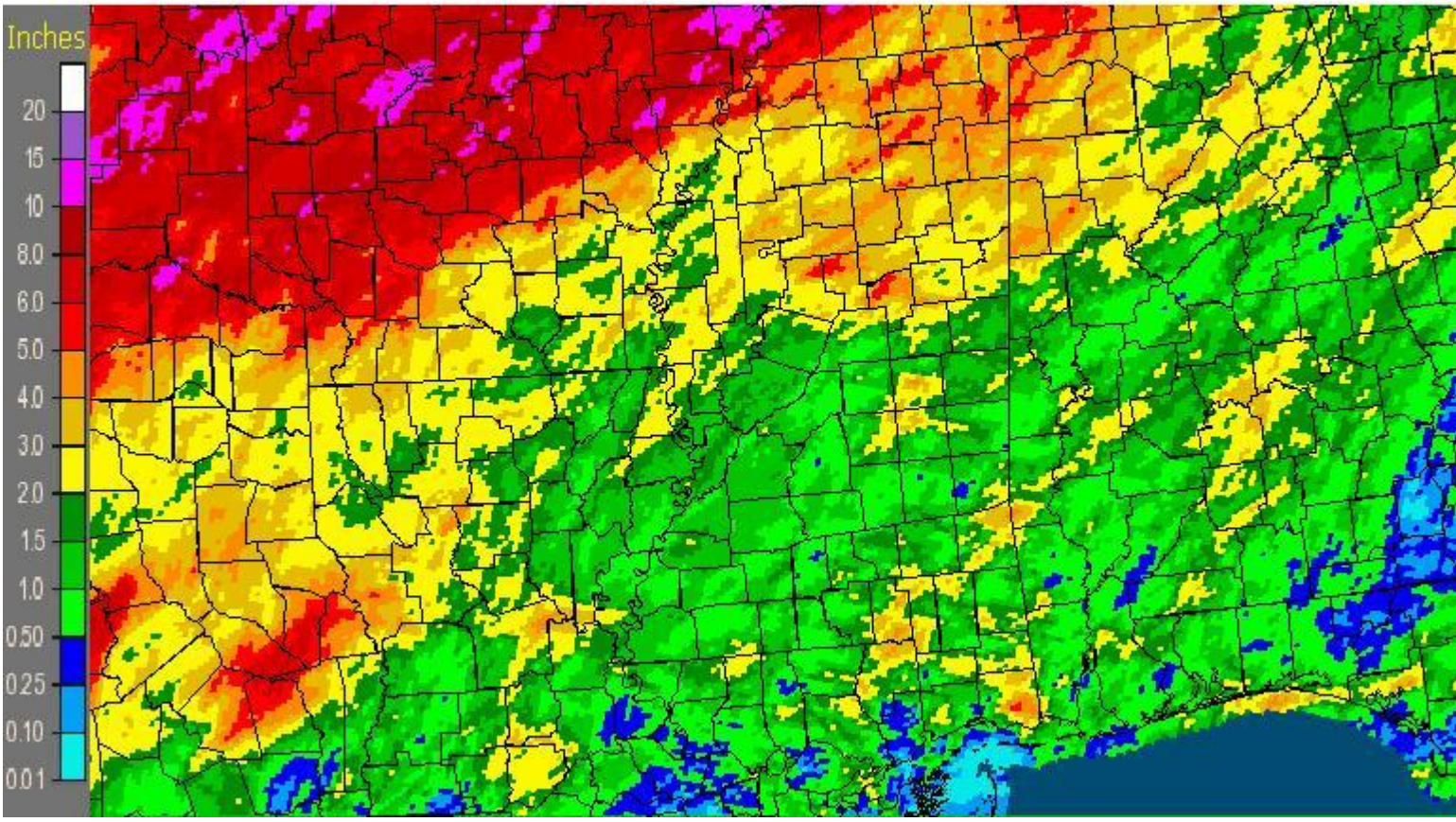
***Pearl River System*:**	**Normal.**
***Yazoo River System*:**	**Normal.**
***Big Black River System*:**	**Normal.**
***Homochitto River System*:**	**Below Normal.**
***Pascagoula River System*:**	**Below Normal.**
***Northeast LA and Southeast AR*:**	**Near Normal.**
***Tombigbee River System*:**	**Near Normal.**
Mississippi River:	**Above Normal.**

Rainfall for the month of May

The largest rainfall amounts in the HSA from NWS Cooperative Observer reports during the period from 7 am on April 30th until 7 am on May 31st were: 4.44 inches at Grenada, MS; 4.15 inches at Elliot, MS; 3.95 inches at Grenada Dam, MS; 3.89 inches at Eupora, MS; 3.55 inches at Cleveland, MS; 3.36 inches at Larto Lake, LA; and 3.33 inches at Winona.

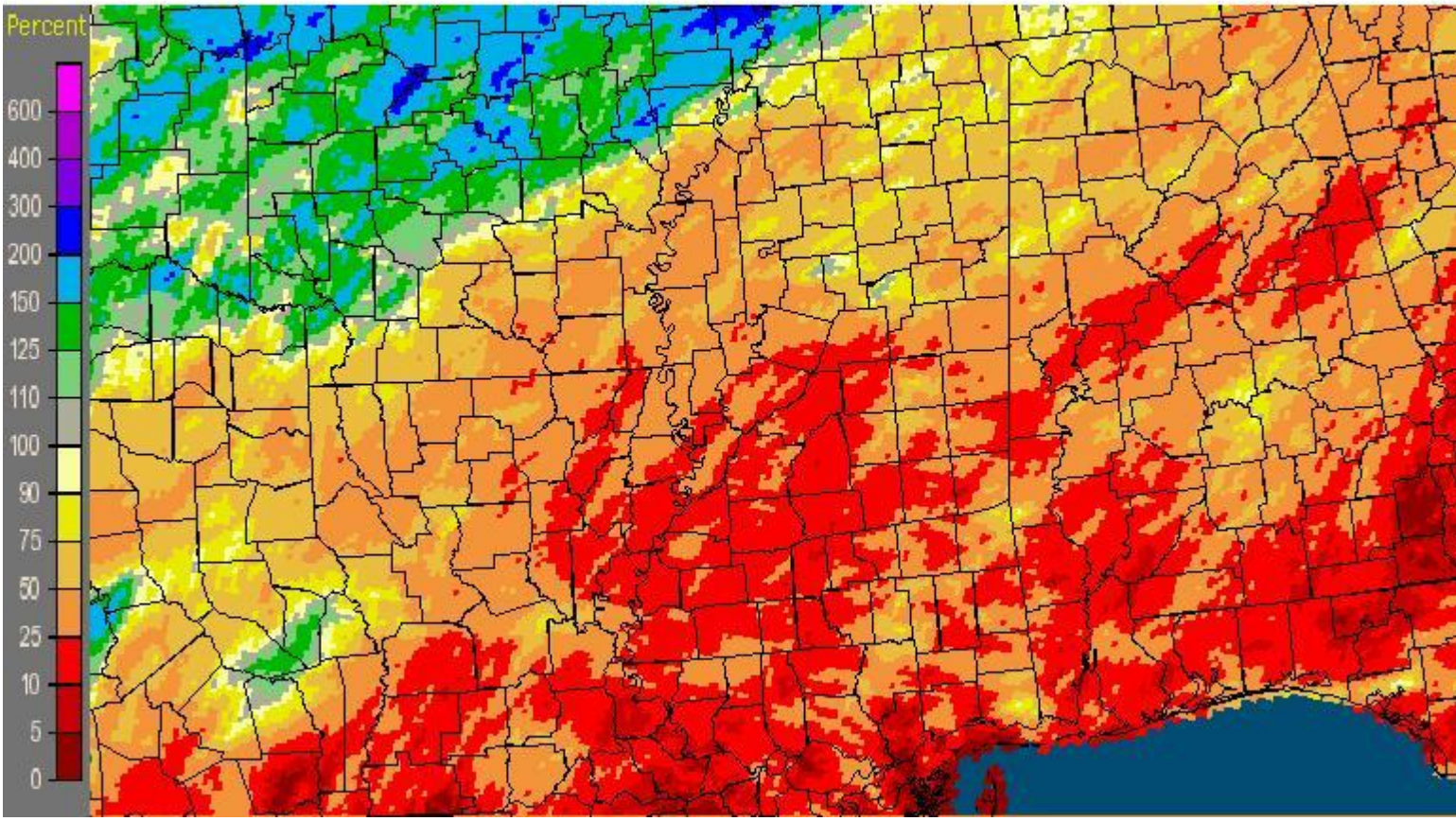
The lowest monthly rainfall totals in the HSA were: 0.51 inches at Bay Springs, MS; 0.58 inches at Laurel, MS; 0.60 inches at Yazoo City, MS; 0.63

inches at Columbia, MS; 0.67 inches at Carthage, MS; and 0.69 inches at Newton, MS.



May 2011 Rainfall Estimates

Mississippi: May, 2011 Monthly Percent of Normal Precipitation
Valid at 6/1/2011 1200 UTC- Created 6/3/11 21:41 UTC



2011 May Percent of Normal Rainfall Estimates

Note: Observer rainfall and MPE may differ due to time differences.

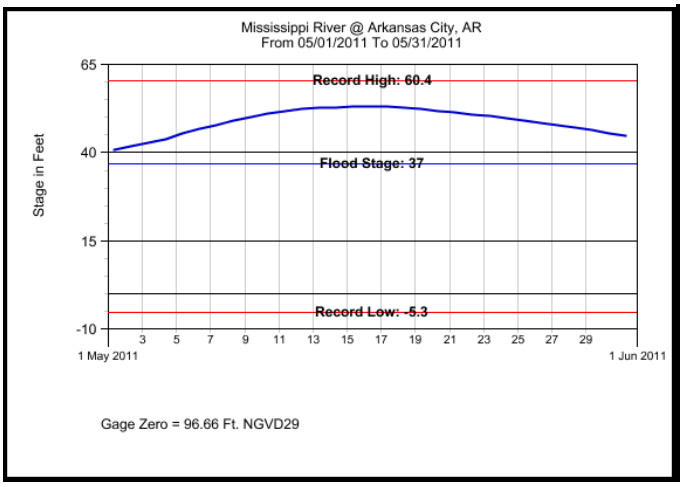
May rainfall for Selected Cities...

City (Airport)	May Rainfall	Departure from normal	2011 Rainfall	2011 Departure from Normal
Jackson, MS	0.83	-4.03	20.01	-6.74
Meridian, MS	1.23	-3.64	22.00	-6.69
Greenwood, MS	1.98	-3.37	15.23	-11.02
Greenville, MS	1.34	-3.99	13.19	-13.37
Hattiesburg, MS	1.26	-4.03	26.01	-7.61
Vicksburg, MS	0.97	-4.94	18.66	-10.15

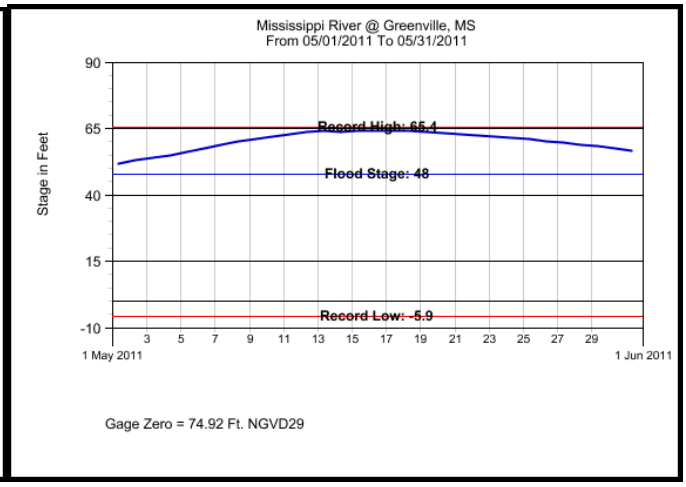
Mississippi River...

Mississippi River Plots for May, 2011

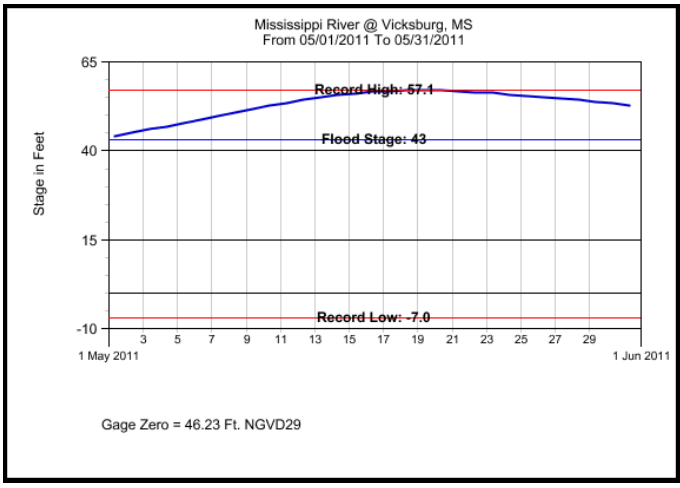
Plots Courtesy of the United States Army Corps of Engineers



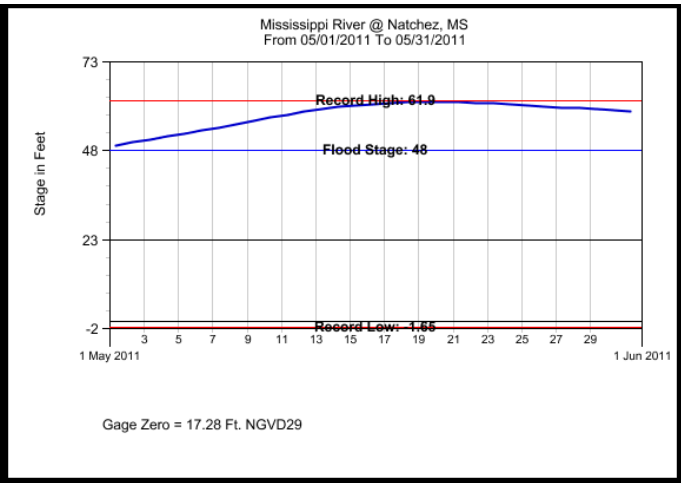
ARKANSAS CITY, MS



GREENVILLE, MS



VICKSBURG, MS



NATCHEZ, MS

Preliminary high and low stages for the month:

Location	FS	High Stage(ft)	Date	Low Stage(ft)	Date
Arkansas City, AR	37	53.14	05/16/11	40.39	05/01/11
Greenville, MS	48	64.22	05/17/11	51.56	05/01/11
Vicksburg, MS	43	57.10	05/19/11	43.90	05/01/11
Natchez, MS	48	61.95	05/19/11	49.16	05/01/11

Total Flood Warning products issued: 5
Total Flood Statement products issued: 219
Total Flood Advisories MS River : 0
Daily Rainfall Products (RRA'S) issued: 31
Daily River Forecast Products (RVS'S) issued: 31
Daily River Stage products (RVA'S) issued: 31

Marty V. Pope

Service Hydrologist

&

Latrice Maxie

Assistant Hydrologist/Observing Program Leader (OPL)

Note: Provisional stage and precipitation data were furnished with the cooperation of the Mississippi, Louisiana, and Arkansas National Weather Service Cooperative Observer Programs, United States Geological Survey (USGS), United States Army Corps of Engineers (USACE), Pearl River Valley Water Supply District (PRVWSD), Pat Harrison Waterway District, Pearl River Basin Development District, and the Mississippi Department of Environmental Quality.
cc: USGS Little Rock District
USGS Ruston District
USACE Mobile District
USACE Vicksburg District
USACE Mississippi Valley Division
USGS Mississippi District
SRH Climate, Weather and Water Division
Lower Mississippi River Forecast Center
Pearl River Valley Water Supply District
Hydrologic Information Center
Southern Region Climate Center
Pat Harrison Waterway District

Pearl River Basin Development District